




TCS – Chillers

TCS 190-310

TCS – Air-Cooled Multiscroll Chillers for Industrial Process Cooling

Tailored to cater to industrial cooling requirements, TCS delivers outstanding efficiency, flexible refrigerant options, and unmatched performance to conquer your toughest cooling demands.



Step into the future of industrial energy efficiency and sustainability with our cutting-edge Air-Cooled Multiscroll Chillers – TCS.



Exceptional energy efficiency

The TCS chiller is engineered with high Seasonal Energy Performance Ratio (SEPR) in mind, it guarantees efficient cooling for industrial operations while minimizing energy usage. This lowers operational costs and supports environmental sustainability without compromising performance.



Advanced multiscroll technology

At the heart of our TCS Chiller lies a cutting-edge multiscroll compressor system, engineered for stable and dependable performance. This compressor technology boosts efficiency, reduces vibrations, and extends the chiller's lifespan and reliability.



Wide cooling capacity range

The TCS is available in a wide cooling capacity range to accommodate various industrial needs. From 190kW up to an impressive 610kW capacity (@7/35°C) our chiller can handle even the most challenging thermal loads.



Green refrigerant option

We prioritize environmental sustainability and offer the choice to equip your TCS with R454B refrigerant, a low-global warming potential solution. This low-impact refrigerant aids in lowering greenhouse gas emissions, promoting a greener future.



Versatility and configuration

Every industrial process comes with unique requirements. The TCS is designed with high versatility, allowing different configurations based on your specific cooling needs.



Reliability

With its robust design, TCS delivers reliable and continuous performance, ensuring stable operation even in the most demanding industrial conditions.

TCS Segments and applications

The TCS range is a versatile solution that perfectly fits a wide range of segments and applications in the industrial sector, ensuring high performance and reliability in various process cooling scenarios.

The TCS is designed to successfully tackle industrial processes that require significant cooling capacity. From large-scale cooling applications to temperature management in complex industrial environments, the TCS is capable of providing efficient and reliable refrigeration.

Application examples for TCS



Metal or Plastic Processing

In the metal and plastic processing industry, precise cooling is crucial to ensure high-quality results. The TCS offers powerful and stable cooling capacity, allowing for optimal temperature control during the molding process, reducing cycle times, and optimizing production.



Cement Industry

Cement production requires reliable and continuous cooling. The TCS proves to be an ideal solution for cooling various stages of the production process, helping to maintain a constant temperature and ensuring the quality of the produced cement.



Beer or Wine Production

In the beverage industry, temperature is a critical element in producing high-quality beer and wine. The TCS provides accurate cooling during fermentation and the final cooling process, helping to maintain ideal temperature levels to achieve a product of excellence.



Cooling of rolls or Process Tanks

In industrial processes involving rolls, process tanks, and other equipment, effective cooling is essential to maintain optimal operating conditions. The TCS offers the cooling power necessary to handle the high temperatures generated by these machines, ensuring stable and reliable operation.

Exceptional Efficiency: Leading in Energy Efficiency

The TCS range is the result of design that places energy efficiency at the core of its development. Thanks to innovative technological and control advancements, the TCS achieves significantly higher Seasonal Energy Performance Ratio (SEPR) values compared to market standards, ensuring outstanding performance with minimal energy consumption.



High seasonal energy performance ratio (SEPR)

The TCS stands out for its high SEPR, which represents the ratio of cooling energy provided to electrical energy consumed during the entire seasonal operation. With state-of-the-art components, advanced thermodynamic cycle optimization, and highly efficient fan control, the TCS allows significant energy savings.

Efficiency through optimized fan control

Fans play an important role in energy consumption. This is why, the TCS include a sophisticated fan control system developed to ensure the chiller operates at the point of maximum efficiency, based on the thermal load. This intelligent logic optimizes fan speed and operation based on cooling demands, minimizing energy waste and ensuring precise and controlled cooling.

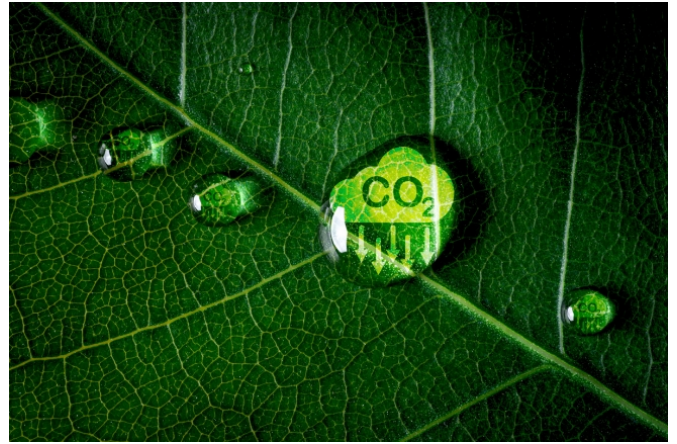


Efficiency during thermal load variations

In industrial processes, thermal loads can vary over time. The TCS is designed to dynamically adapt to these fluctuations, automatically adjusting the operation of compressors and fans to maintain optimal efficiency even under partial load conditions. This results in more stable operation, reduced energy consumption, and extended chiller lifetime.

Eco-friendly and sustainable

With high SEPR, the superior energy efficiency of the TCS not only translates to cost savings for users but also contributes to environmental sustainability. By reducing energy consumption and greenhouse gas emissions, the TCS is an eco-friendly and environmentally responsible choice, allowing businesses to achieve their social and environmental responsibility goals.



Benefits & features

Discover here the full range of benefits and features that make our TCS chillers the best option for industrial cooling requirements.

TCS 310



1 Elektronikon MarkV controller

- Proven algorithms provide operational efficiency for the whole range
- You can always track machine status and working parameters using Atlas Copco SMARTLINK connection
- Built-in set of safety options, like phase sequence relay provides ultimate protection and reduced risk of malfunction
- Sun rays shield to increase the protection of the controller

2 Axial fans

- Axial fans configured with protective grilles and high performance bladed with integrated premium high efficiency EC brushless motors.
- Night mode offers significant noise reduction during night hours.

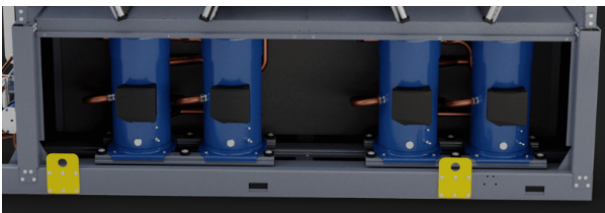
3 Compressor noise reduction box

- To reduce the noise of the unit, a compressor noise reduction box is available.
- Easily removeable for inspection and maintenance.



4 Refrigerant circuit

- Twin refrigerant circuit for redundancy
- Optimized control for stability, efficiency and redundancy
- Continuous uptime and perfect serviceability with industry-standard scroll compressor
- Electronic expansion valve (EEV) as standard for highest energy efficiency, flexibility and time saving during maintenance



5 Evaporator

- Plate to plate stainless steel heat exchanger
- Optimized for high efficiency
- Shell and tube robust evaporator available as option

6 Microchannel Condenser

- Light-weighted with a high rate of heat transfer
- Provides lower cost of maintenance with reduced refrigerant charge
- With epoxy coating (as option) for corrosive industrial environment

7 Insulated on board water tank

- Internal resin coating protection to avoid corrosion
- Available close atmospheric or pressurized for a wide range of applications
- Protected continuous operation with a set of onboard safety devices

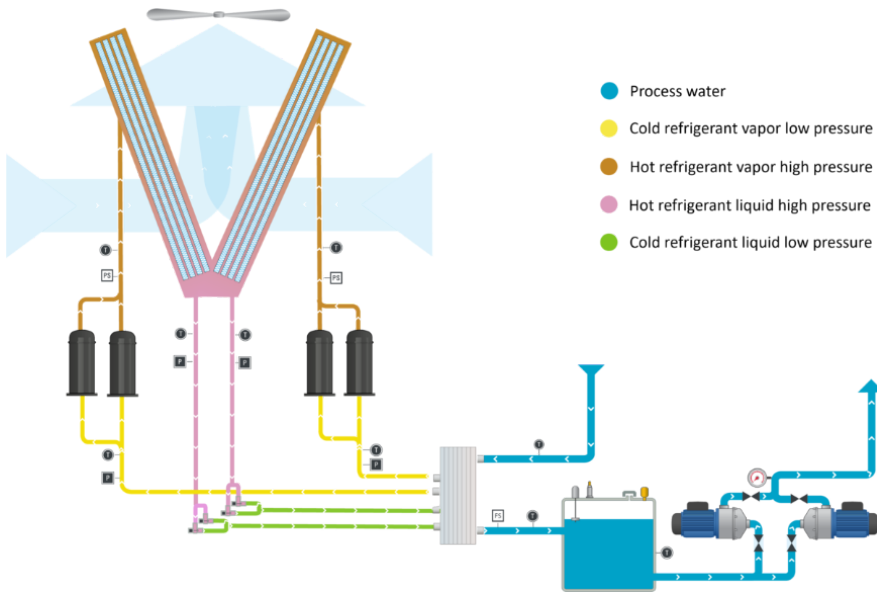
8 Circulation pumps

- Vast range of configurations with different range of pressure to meet the variety of hydro circuits
- Stand-by pump with automatic switching available in all versions for operation with no interruption
- Housing and impellers made in 316L stainless steel
- iE3 efficiency motor

9 Hydro connections

- Easy installation with grooved connection as standard
- Vast range of flanges (as accessory) to meet your needs (UNI, ASME)

TCS Flowchart



Air flow

The air goes through the microchannel condensers to reduce the pressure and temperature of the refrigerant. On top of the unit, speed-regulated axial fans create an air flow which fully reveal their efficiency, especially during partial loads.

Refrigerant flow

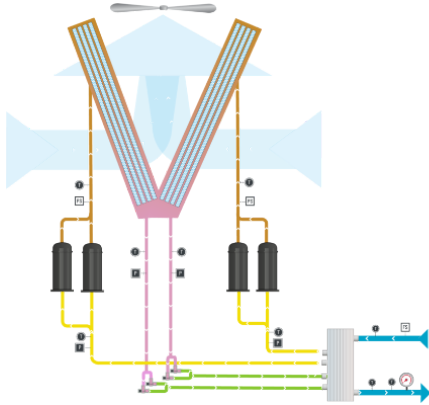
Refrigerant fluid, kept at low pressure, is made to evaporate near to the cold source: by evaporating, it absorbs the vaporization heat from the cold source, cooling it further. The refrigerant gas is compressed to a higher pressure with use of mechanical energy (electrical). The refrigerant gas, at high pressure and high temperature, is condensed near to the hot source: by condensing, it transfers heat to the hot source. The refrigerant liquid at high pressure is brought back to the low pressure it had at the beginning. The low pressure encourages its evaporation even at low temperatures, like that of the cold source. The cycle ends and begins from the start.

Water flow

The hot inlet water flow goes through the evaporator, where refrigerant flow at low pressure is going to reduce the temperature of the water collecting the heat and evaporating the refrigerant. Then after passing the evaporator, the water flow goes into a water tank with a set of safety devices. It then flows to a pump group, which consists of one or two pumps with various outlet pressure versions bringing chilled water to the application.

TCS hydraulic configuration options

Plate evaporator



Shell & tube

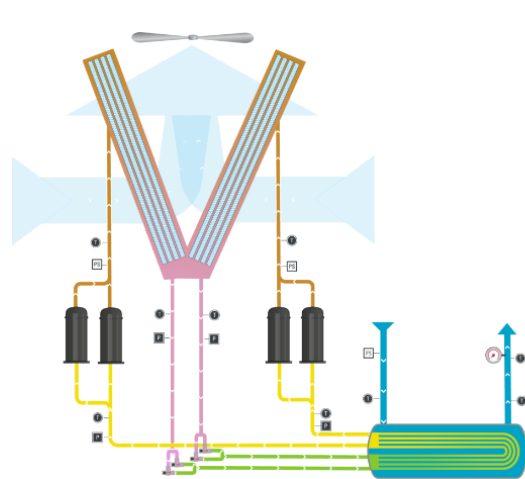
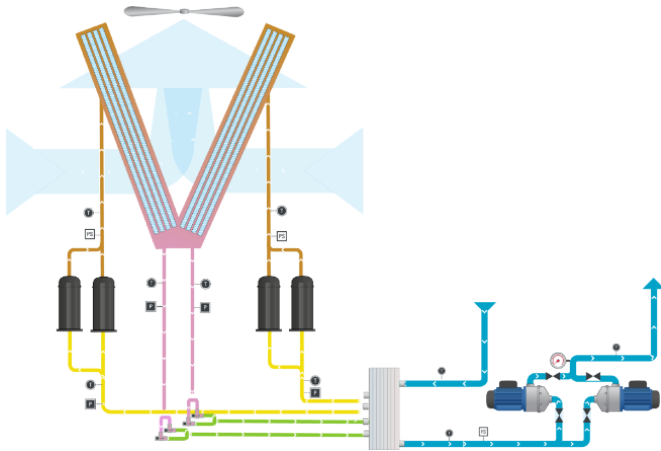
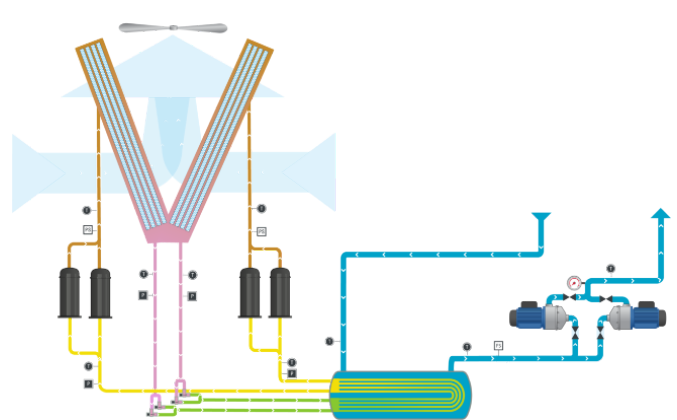


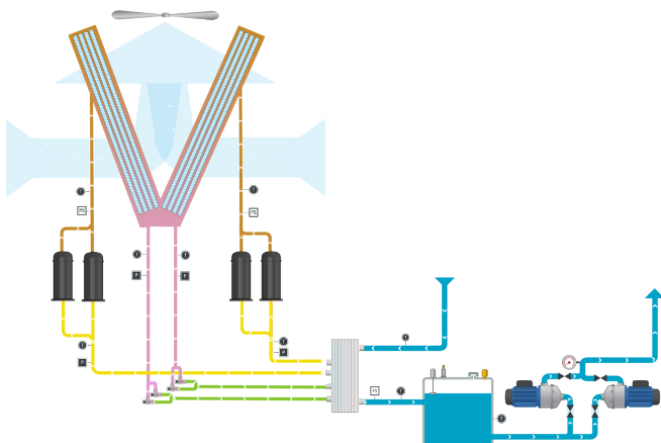
Plate with stand-by pump



Shell & tube with stand-by pump

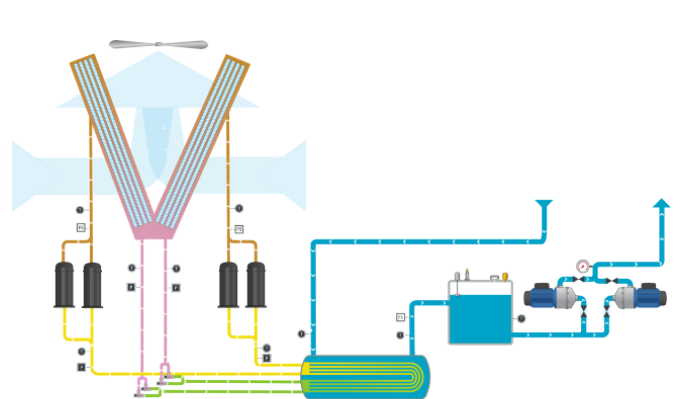


Plate, tank and stand-by pump



Shell & tube, tank and stand-by pump

** Available only for TCS 350-610*

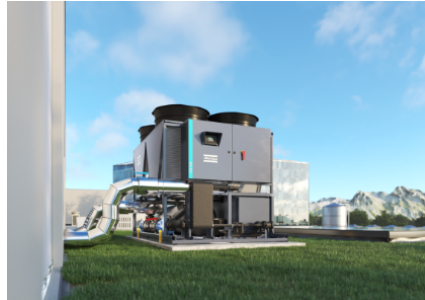


Configurability for your industrial needs

TCS offers a high level of configurability with a wide range of options, empowering you to create a chiller that perfectly aligns with your specific industry requirements.

Evaporator Options: Plate to plate or Shell-and-Tube

Choose between a plate evaporator for compactness and efficiency or a shell-and-tube evaporator for robustness and versatility, ensuring that the chiller's cooling system is tailored to your process demands.



Three Water Outlet Temperature Ranges: MT, HT, XHT

Select from three different water outlet temperature ranges: Medium Temperature (MT), High Temperature (HT), and Extra High Temperature (XHT). This flexibility allows you to match the chiller's performance precisely to your process cooling needs.

Two Refrigerant Options: R410A or R454B

Customize your chiller's refrigerant according to your environmental priorities and regulatory requirements. Choose between the standard R410A refrigerant or the low GWP R454B refrigerant, reducing your carbon footprint and supporting sustainability initiatives.

Configurable Integrated Hydraulic Part: Single or Dual Pump

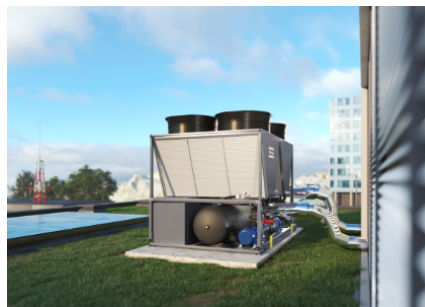
Tailor the hydraulic part of the chiller to your hydraulic requirements. Select between a single or dual pump stand-by configuration with a wide range of available flow rates and pressures, and choose whether you want an integrated tank or not, ensuring the chiller's hydraulic system is perfectly matched to your process conditions.

Aluminum Inlet Air Filters

Ensure the longevity and reliability of the chiller choosing inlet air filters that keep the condenser coils clean, maximizing the chiller's performance and reducing maintenance needs.

Compressor Noise Reduction Box

For environments that demand low noise levels, select the compressor noise reduction box option. This feature effectively reduces the noise generated by the compressors, ensuring a quieter working environment.



Energy Consumption Meter

Stay informed about the chiller's energy usage with the energy consumption meter option, helping you monitor and optimize energy efficiency.

Double Safety Valve

Ensure an extra layer of safety with the double safety valve, providing redundancy and protection in during maintenance activity.

Antivibration Kit

Minimize vibration and noise with the antivibration kit option, ensuring stable and silent chiller operation.

Epoxy-Coated Condenser Coils

Epoxy-coated condenser coils for protection against corrosion and increased longevity, ideal for demanding and harsh environments.

Monitoring and control

Intelligence is part of the package, with Mk5 Elektronikon® and SMARTLINK technology ensure optimal control and monitoring of your TCS chiller.



The Mk5 Elektronikon®

The Elektronikon® unit controller is specially designed to maximize the performance of your chillers under a variety of conditions. Built-in set of safety options like phase sequence relay provides ultimate protection and reduced risk of malfunction.

Our solutions provide you with key benefits such as increased energy efficiency, lower energy consumption, reduced maintenance times and less stress... less stress for both you and your entire system.

SMARTLINK

Monitor your chiller with SMARTLINK

Knowing the status of your equipment at all times is the surest way to achieve optimal efficiency and maximum availability.

Go for energy efficiency

Customized reports on the energy efficiency of your equipment.

Increase uptime

All components are replaced on time, ensuring maximum uptime.

Save money

Early warnings avoid breakdowns and production loss.



Cover all bases with a Service Plan

Industrial cooling is vital to your production process. Selecting the right service level will keep your production running efficiently while keeping operational costs under control.



Custom service expertise and logistics

By tailoring service to your needs and priorities, we help you make the most of your investment and manage your resources effectively. Whatever the service level you choose, our expertise makes it easier for you to time service correctly and source the right parts quickly and hassle-free.

Covering all service bases

Our service experts are well-trained and experienced. They perform service more quickly, optimizing the availability of your equipment. They spot and fix potential problems early, preventing efficiency loss and breakdowns. They cover all bases, servicing all your industrial chillers and coolers, including machines not delivered by us.



Focus on your business

Maximum care means we provide uninterrupted flow of cooling power, while you can focus on your core activities. Let us worry about parts inventory, equipment monitoring, service interventions and repairs. Get unrivalled uptime and efficiency, reduce overhead costs and achieve your business goals.



TCS features and options

	FEATURES	TCS 190-610A Chiller
General	F-gas	R410A – R454B
	GWP	2088 – 467
	IP grade	IP54
Installation	Lifting with bars + ropes + spreader beam	●
Electrical	400V/3ph 50Hz IEC	V
	460V/3ph 60Hz UL 508A	V
Control	Controller type	Elektronikon MKVS
	4,3" touchscreen	●
	Text on display in local language	●
	Day and week scheduler	●
	Service timer	●
	Refrigerant High pressure transmitter (digital)	●
	Refrigerant Low pressure transmitter (digital)	●
	Automatic priority for compressors	●
Safety	Phase sequence motor direction	●
	Thermal-magnetic circuit breakers protection on compressors, pump and fan	●
	High pressure switch with manual reset	●
	Flow switch – paddle type	●
	Low pressure switch – with auto reset (with hysteresis)	-
	Low pressure transmitter – with auto reset (hysteresis)	●
	Winter protection: auto-on of the pump with low ambient temperature (software function)	●
	Anti Flood system (if automatic filling system included)	●
Expansion valve	Electronic expansion valve (EEV)	●
Compressor	Scroll	●
	Crankcase heater	●
	Sound reducing enclosure for compressors	opt
System integration	Remote ON-OFF	●
	Single free contact for warning	●
	Single free contact for shut down alarm	●
	Remote setpoint + Temperature transmission (4..20mA)	opt
	Modbus RTU – RS480	accessory
	Profibus	accessory
	Profinet	accessory
	TCP	accessory
	Ethernet IP	accessory
CANbus	accessory	
Remote control panel	accessory	
Connectivity	Smartlink connectivity incl modem (4G), incl 'service' license	●
	Smartlink UPTIME license	opt

FEATURES		TCS 190-610A Chiller
Hydronics	No Pump	●
	Pump non-ferrous	V
	Pump non-ferrous + stdby pump	V
	No tank	●
	Internal epoxy coated tank, antirust externally painted and insulated 20mm polyethylene closed circuit + hydro devices included: solenoid valve, water level sensor, city water line filter, safety relief valve (2,5 barg), venting valve, drain	V*
	Manual filling system	V
	Automatic filling system (solenoid valve, tap water filter, MKVS controlled)	opt
	External manual by-pass	opt
	Water pressure gauge (only if pump is included)	●
	Grooved water connections	●
	Flanges EN 1092-1 type 13B / PN16 Galvanized carbon steel (ex UNI 2254-67)	opt
	Flanges ASME / PN16 Galvanized carbon steel	opt
	Counterflanges	opt
	Fan	EC Variable speed fan (brushless fan with integrated control, suitable above to -20°C ambient)
Condenser	Condenser (Microchannel)	●
	Condenser (Microchannel) – with epoxy powder coating	opt
	Cleanable condenser air filter (frame and mesh in aluminum)	opt
Evaporator	Brazed plate HE	V
	Shell & Tubes heat exchanger	V
Refrigerant circuit	Sight glass	●
	Liquid receiver	●
	Filter drier	●
Packaging	Pallet and plastic wrap protection	●
	Wooden case (close box)	opt
	Prepared for container	opt

*Not for TCS190-310 with S&T evaporator.

Refrigerant option R454B



**LOW GWP
REFRIGERANT
R 4 5 4 B**

R454B – green refrigerant option.

The TCS Chiller is an innovative cooling solution designed to deliver superior performance with reduced environmental impact. At the heart of this innovation, the R454B refrigerant gas, an eco-conscious choice that promotes a transition towards more sustainable and environmentally friendly solutions.

Low Global Warming Potential (GWP)

R454B boasts a significantly lower GWP compared to the traditional R410A, thereby substantially reducing the environmental footprint of your cooling system.

Atlas Copco: Your Reliable Partner for Transition

Atlas Copco organization is committed to supporting our clients in all stages of transition towards sustainable solutions. With a team of expert technicians, we are ready to provide guidance, training, and ongoing assistance to ensure safe and efficient utilization of our chillers. Make the right choice for a sustainable future. Choose the TCS Chiller with R454B Refrigerant Gas and join us in our commitment to a cleaner and safer environment.



Energy Efficiency

Thanks to its excellent thermal properties, R454B ensures highly efficient operation, leading to reduced energy consumption and operational costs.



Lower superheat

R454B offers enhanced efficiency at partial loads, reducing issues of superheating and ensuring a more stable and reliable operation.



Proven technological components

The R454B version is designed with proven technology that keep maintenance cost under control.

Technical specifications R454B

TCS 190-310 AG HT 50 Hz

	TCS 190 A HT	TCS 230 A HT	TCS 260 A HT	TCS 280 A HT	TCS 310 A HT
Refrigerant type / GWP	R454B / 467	R454B / 467	R454B / 467	R454B / 467	R454B / 467
Cooling capacity (kW/RT)	189.3 / 53.8	226.6 / 64.4	245.3 / 69.8	277.9 / 79.0	304.7 / 86.6
Power consumption (kW)	59.7	71.5	79.2	92.9	106.2
SEPR	6.17	6.27	6.03	5.93	5.82
Scroll compressor for each circuit	3/2	3/3	2/2	2/2	2/2
Expansion valve type	Electronic	Electronic	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX	MCX	MCX
Number of fans	3	4	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	32.5 / 143.2	38.9 / 171.4	42.1 / 185.5	47.7 / 210.2	52.3 / 230.4
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1619 / 3568	1784 / 3934	1791 / 3947	1950 / 4300	2049 / 4517
Approvals	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE

* Reference conditions: ambient air 35°C, evaporator HT in 12°C / out 7°C, 0% Glycol/Relative Humidity 40%.

TCS 190-310 AG HT 60 Hz

	TCS 190 A HT	TCS 230 A	TCS 280 A	TCS 310 A
Refrigerant type / GWP	R454B / 467	R454B / 467	R454B / 467	R454B / 467
Cooling capacity (kW/RT)	187.5 / 53.3	227.5 / 64.7	274.1 / 77.9	293.8 / 83.5
Power consumption (kW)	55.7	72.1	89.0	97.7
SEPR	6.53	6.33	6.33	5.80
Compressor type	Scroll	Scroll	Scroll	Scroll
Compressor for each circuit	2/2	3/2	3/3	2/2
Expansion valve type	Electronic	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX	MCX
Number of fans	4	4	4	4

Fan control	EC Brushless	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	32.2 / 141.8	39.1 / 172.0	47.1 / 207.3	50.5 / 222.2
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1637 / 3609	1711 / 3771	1846 / 4069	1852 / 4083
Approvals	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE

* Reference condition: Ambient Air 35°C, Evaporator HT in 12°C / out 7°C, 0% Glycol/Relative Humidity 40%

TCS 190-310 AG XHT 50Hz

	TCS 190 A XHT	TCS 230 A	TCS 260 A	TCS 280 A	TCS 310 A
Refrigerant type / GWP	R454B / 467	R454B / 467	R454B / 467	R454B / 467	R454B / 467
Cooling capacity (kW/RT)	208.9 / 59.4	222.3 / 63.2	247.8 / 70.5	275.9 / 78.5	324.5 / 92.3
Power consumption (kW)	39.5	37.9	42.9	49.7	61.5
SEPR	6.33	6.62	6.75	6.69	6.50
Compressor type	Scroll	Scroll	Scroll	Scroll	Scroll
Compressor for each circuit	2/2	2/2	3/2	3/2	3/3
Expansion valve type	Electronic	Electronic	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX	MCX	MCX
Number of fans	3	4	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	36.0 / 158.3	38.3 / 168.5	42.7 / 187.8	47.5 / 209.1	55.8 / 245.9
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1632 / 3597	1637 / 3609	1697 / 3742	1772 / 3907	1846 / 4069
Approvals	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE

* Ambient Air 25°C, Evaporator XHT in 20°C / out 15°C, 0% Glycol/Relative Humidity 40%

TCS 190-310 AG XHT 60Hz

	TCS 230 A XHT	TCS 280 A	TCS 310 A
Refrigerant type / GWP	R454B / 467	R454B / 467	R454B / 467
Cooling capacity (kW/RT)	252.1 / 71.7	269.5 / 76.6	312.4 / 88.8
Power consumption (kW)	42.4	46.0	55.9
SEPR	6.71	6.76	6.75
Compressor type	Scroll	Scroll	Scroll
Compressor for each circuit	2/2	2/2	3/2
Expansion valve type	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX
Number of fans	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	43.4 / 191.0	46.4 / 204.2	53.8 / 236.7
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1626 / 3586	1698 / 3744	1759 / 3877
Approvals	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE

* Reference condition: Ambient Air 25°C, Evaporator XHT in 20°C / out 15°C, 0% Glycol/Relative Humidity 40%

Technical specifications R410A

TCS 190-310 A HT 50Hz

	TCS 190 A HT	TCS 230 A HT	TCS 260 A HT	TCS 280 A HT	TCS 310 A HT
Refrigerant type / GWP	R410a / 2088	R410a / 2088	R410a / 2088	R410a / 2088	R410a / 2088
Cooling capacity (kW/RT)	195.1 / 55.5	230.2 / 65.5	250.2 / 71.1	284.3 / 80.8	311.8 / 88.7
Power consumption (kW)	61.5	74.3	81.9	94.4	106.5
SEPR	5.95	6.01	5.84	5.80	5.74
Compressor type	Scroll	Scroll	Scroll	Scroll	Scroll
Compressor for each circuit	3/2	3/3	2/2	2/2	2/2
Expansion valve type	Electronic	Electronic	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX	MCX	MCX
Number of fans	3	4	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	33.5 / 147.5	39.5 / 174.1	43.0 / 189.2	48.8 / 215.0	53.6 / 235.8
Hydraulic connection-in/out	Grooved – 4”/ 4”	Grooved – 4”/ 4”	Grooved – 4”/ 4”	Grooved – 4”/ 4”	Grooved – 4”/ 4”
Power supply	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1619 / 3568	1784 / 3934	1791 / 3947	1950 / 4300	2049 / 4517
Approvals	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE

* Reference condition: Ambient Air 35°C, Evaporator HT in 12°C / out 7°C, 0% Glycol/Relative Humidity 40%

TCS 190-310 A HT 60Hz

	TCS 190 A HT	TCS 230 A HT	TCS 280 A HT	TCS 310 A HT
Refrigerant type / GWP	R410a / 2088	R410a / 2088	R410a / 2088	R410a / 2088
Cooling capacity (kW/RT)	190.7 / 54.2	230.7 / 65.6	279.2 / 79.4	302.9 / 86.1
Power consumption (kW)	59.1	75.0	91.3	100.5
SEPR	5.99	5.84	5.87	5.65
Compressor type	Scroll	Scroll	Scroll	Scroll
Compressor for each circuit	2/2	3/2	3/3	2/2
Expansion valve type	Electronic	Electronic	Electronic	Electronic

Condenser type	MCX	MCX	MCX	MCX
Number of fans	4	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	32.8 / 144.2	39.6 / 174.5	48.0 / 211.2	52.0 / 229.1
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1637 / 3609	1711 / 3771	1846 / 4069	1852 / 4083
Approvals	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE

* Reference condition: Ambient Air 35°C, Evaporator HT in 12°C / out 7°C, 0% Glycol/Relative Humidity 40%

TCS 190-310 AXHT 50Hz

	TCS 190 A XHT	TCS 230 A XHT	TCS 260 A XHT	TCS 280 A XHT	TCS 310 A XHT
Refrigerant type / GWP	R410a / 2088	R410a / 2088	R410a / 2088	R410a / 2088	R410a / 2088
Cooling capacity (kW/RT)	217.6 / 61.9	231.1 / 65.7	252.3 / 71.7	287.5 / 81.7	339.0 / 96.4
Power consumption (kW)	41.2	40.3	44.9	51.5	62.8
SEPR	6.07	6.28	6.40	6.29	6.18
Compressor type	Scroll	Scroll	Scroll	Scroll	Scroll
Compressor for each circuit	2/2	2/2	3/2	3/2	3/3
Expansion valve type	Electronic	Electronic	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX	MCX	MCX
Number of fans	3	4	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	37.4 / 164.9	39.8 / 175.1	43.4 / 191.2	49.5 / 217.8	58.3 / 256.9
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz	400V ±10% / 3Ph+PE / 50Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1632 / 3597	1637 / 3609	1697 / 3742	1772 / 3907	1846 / 4069
Approvals	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE	IEC, PED 2014/68/UE

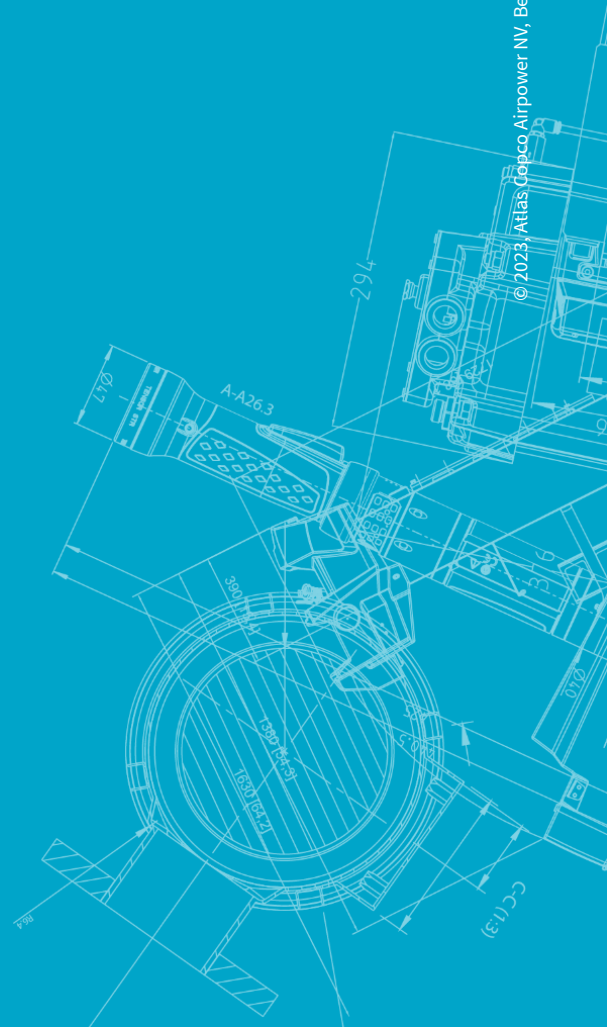
TCS 190-310 AXHT 60Hz

	TCS 230 A XHT	TCS 280 A XHT	TCS 310 A XHT
Refrigerant type / GWP	R410a / 2088	R410a / 2088	R410a / 2088
Cooling capacity (kW/RT)	257.5 / 73.2	279.9 / 79.6	320.8 / 91.2
Power consumption (kW)	44.6	50.3	57.3
SEPR	6.31	6.13	6.33
Compressor type	Scroll	Scroll	Scroll
Compressor for each circuit	2/2	2/2	3/2
Expansion valve type	Electronic	Electronic	Electronic
Condenser type	MCX	MCX	MCX
Number of fans	4	4	4
Fan control	EC Brushless	EC Brushless	EC Brushless
Fan nominal power (each) (kW)	3.3	3.3	3.3
Min/max ambient temperature (°C/°F)	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F	-20/+46 °C, -4/+115 °F
Evaporator type	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes	Brazed Plate or Shell and Tubes
Water flow rate (m ³ /h / gpm)	44.3 / 195.1	48.2 / 212.1	55.2 / 243.1
Hydraulic connection-in/out	Grooved – 4" / 4"	Grooved – 4" / 4"	Grooved – 4" / 4"
Power supply	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz	460V ±10% / 3Ph+PE / 60Hz
Auxiliary voltage	24V AC/DC	24V AC/DC	24V AC/DC
IP rating	IP54	IP54	IP54
Length (mm/in)	3500 / 137.8	3500 / 137.8	3500 / 137.8
Width (mm/in)	2230 / 87.8	2230 / 87.8	2230 / 87.8
Height (mm/in)	2520 / 99.2	2520 / 99.2	2520 / 99.2
Net weight (kg/lbs)	1626 / 3586	1698 / 3744	1759 / 3877
Approvals	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE	cULus, PED 2014/68/UE

* Ambient Air 25°C, Evaporator XHT in 20°C / out 15°C, 0% Glycol/Relative Humidity 40%



Atlas Copco AB
(publ) SE-105 23 Stockholm, Sweden
Phone: +46 8 743 80 00
Reg. no: 556014-2720
www.atlascopco.com



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